NASA Procedural Requirements

COMPLIANCE IS MANDATORY

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Appendix A. Definitions

A.1 Acquisition. Any means of bringing an aircraft under NASA control or into the property control inventory.

A.2 Aircraft Classification. NASA use of aircraft: Research and Development, Program Support, or Mission Management.

A.3 Aircraft Inventory. Aircraft inventory includes active, flyable storage, parts, and display aircraft.

A.4 Airworthiness. The capability of an aircraft to be operated within a prescribed flight envelope in a safe manner.

A.5 Bailed Aircraft. Any aircraft owned by one entity but under the operational control of another entity for an indefinite period under an agreement that may or may not include financial recompense. Thus, aircraft which are loaned to NASA, or which NASA loans to other entities, are bailed aircraft. As defined by 41 C.F.R. 102-33, Bailed Aircraft means a Federal aircraft that is owned by one executive agency, but is in the custody of and operated by another executive agency under an agreement that may or may not include cost reimbursement. Bailments are executive agency-to-executive agency agreements and involve only aircraft, not services.

A.6 Borrowed Aircraft. As defined by 41 C.F.R. 102-33, Borrowed aircraft are aircraft owned by a non-executive agency and provided to an executive agency for use without

compensation. The executive agency operates and maintains the aircraft.

A.7 Center's Chief of Flight Operations. The Center's Chief of Flight Operations is a generic term to indicate that individual who is responsible for overall supervision of all flight operations conducted by that Center, regardless of the specific Center title.

A.8 Chartered Aircraft. An aircraft procured under a one-time exclusive agreement that specifies performance and payment. The vendor operates chartered aircraft. Note: The preceding Inter-Agency Committee on Aircraft Policy's (ICAP) definition does not preclude NASA from specifying what type aircraft they wish to charter nor is a separate agreement required for each flight. As defined by 41 C.F.R. 102-33, Chartered aircraft are aircraft that an executive agency hires commercially under a contractual agreement specifying performance and one-time exclusive use. The commercial source operates and maintains charter aircraft.

A.9 Civil Aircraft. Aircraft that are other than "public," which include military aircraft. This includes aircraft engaged in carrying persons or property for commercial purposes, such as air carrier, commuter, charter, and leased aircraft, and Government aircraft carrying passengers. (Source: 49 U.S.C. §§ 40102 (16), (37))

A.10 Configuration Control. Conformity to type design is considered attained when the aircraft configuration and the components installed are consistent with drawings, specifications, and other data that are part of the type certificate and would include any supplemental type certificates and field-approved alterations incorporated into the aircraft.

A.11 Contracted Aircraft. An aircraft procured for an agency's exclusive use for a specified period of time by means of a formal contract under which the contractor is responsible for the operation, safety, and maintenance of the aircraft.

A.12 Crew Duty Time. The total time a crew is on duty. Crew duty time accrues consecutively and begins when a crew reports to a designated place of duty to begin preparation for a flight and ends when the engines are cut at the end of the flight or series of flights.

A.13 Crew Rest. The total time flightcrew members are assigned no official duties to provide for adequate rest. This includes crew transportation prior to participating in flightcrew duties.

A.14 Deviation. A documented authorization releasing a program or project from meeting a requirement before the requirement is put under configuration control at the level the requirement will be implemented.

A.15 Disposition. Any means of deleting an aircraft from NASA control or from the property- control inventory.

A.16 Flight Envelope. Aircraft performance limits or limitations approved by the aircraft manufacturer (DoD, FAA) or established by a formal NASA airworthiness review.

A.17 Flight Termination System. A flight termination system (FTS) may be dependent, independent, or self-initiated. A dependent FTS uses its own command and control system to either automatically self-terminate or allow a remote pilot to terminate flight. An independent FTS contains a fully independent transmitter/receiver located onboard the aircraft that is activated remotely typically by a range safety officer. Self-initiated FTSs are typically associated with COTS RC controllers that are activated upon lost link.

A.18 Functional Check Flight Pilot. A PIC who is adequately trained and authorized by the Center's Chief of Flight Operations to conduct Functional Check Flights of Center aircraft.

A.19 Government Aircraft. Any aircraft owned, leased, chartered, or rented and operated by an Executive Agency.

A.20 Hazard Analysis. The technique used to systematically identify, evaluate, resolve, and assess hazards.

A.21 Instructor Pilot. A qualified PIC who is designated by NASA to perform the functions of an instructor in the aircraft. An IP is qualified to instruct and evaluate other pilots.

A.22 Leased Aircraft. An aircraft that the Government has exclusive right (through a financial contract) to use for a specific period of time and for which the procuring agency is responsible for the operation and safety of the aircraft. Maintenance responsibility is defined under the terms of the contract. As defined by 41 C.F.R. 102-33, Leased Aircraft are aircraft hired under a commercial contractual agreement in which an executive agency has exclusive use of the aircraft for an agreed-upon period of time. The acquiring executive agency operates and maintains the aircraft.

A.23 Loaned Aircraft. An aircraft owned by one entity, but under the operational control of another agency under an agreement that does not include financial recompense. As defined by 41 C.F.R. 102-33, "loaned aircraft" are Federal aircraft owned by an executive agency, but in the custody of a non-executive agency under an agreement that does not include compensation.

A.24 Maintenance. Scheduled or unscheduled work on an aircraft that is required to attain or to sustain a state of airworthiness and meets all required standards, practices, and guidelines for airworthiness.

A.25 Mission Management Aircraft. Those administrative aircraft certified by the FAA and used primarily for passenger transport.

A.26 Mission Required. Mission management flights where failure to use a NASA aircraft would have a clear, negative impact on a NASA operational mission, prevent timely response to an aircraft or spacecraft accident, or threaten the health and safety of NASA personnel, and only when such travel could not be conducted using commercial airlines, chartered aircraft service, or ground transportation to fulfill that mission need.

A.27 Modification. Any alteration, addition, or removal of aircraft structure, components, equipment, computer software, or primary instrumentation.

A.28 Model Aircraft. A subscale aircraft built from balsa wood, plywood, foam, or other lightweight materials that is typically flown by means of a commercial off-the-shelf radio control (RC) flight controller. Model aircraft are designed to be operated within visual line of sight of the controlling pilot. Model aircraft typically operate at a Takeoff Gross Weight (TOGW) less than or equal to 55 pounds.

A.29 NASA Aircraft. Aircraft that are bought, borrowed, chartered, rented, or otherwise procured or acquired--including aircraft produced with the aid of NASA funding--regardless of cost, from any source for the purpose of conducting NASA science, research, or other missions, and which are operated by NASA or whose

operation is managed by NASA. Unmanned aircraft are defined as “aircraft” by the FAA and are included in the definition of NASA aircraft, unless specified otherwise.

A.30 NASA Inter-Center Aircraft Operations Panel. The IAOP is composed of the Chiefs of Flight Operations from Centers that operate aircraft, representatives from HQ AD, advisors from appropriate Centers, and the OSMA.

A.31 Other Official Travel. Mission management flights that are not classified as Required Use or Mission Required.

A.32 NASA Pilot. Pilots who perform piloting duties as a part of their official NASA position description to fulfill NASA contract requirements or in accordance with an interagency agreement, such as a military pilot on loan to NASA.

A.33 Observer. An individual who is a primary crew member for UAS flight operations. The observer serves as the flight safety monitor to ensure noninterference between the unmanned aircraft and nonparticipating aircraft by means of see and avoid. The observer may perform these duties either on the ground or in a chase aircraft while in direct communication with the controlling pilot. Daisy chain observer operations are limited to 5 NM between the pilot in command and the airborne unmanned aircraft.

A.34 Pilot Flying. The pilot physically controlling the aircraft by hand-flying it or manipulating the controls through the autopilot.

A.35 Pilot in Command. A NASA pilot who holds the appropriate category, class, and, if appropriate, type rating or military qualification for the aircraft and is qualified in its operation by appropriate Center or mission management directives. The PIC has final authority and responsibility for the operation and safety of the flight.

A.36 Pilot-Operator. A pilot-operator (also called Ground Control Operator (GCO) or Internal Pilot) is an individual who manages the operation of an unmanned aircraft by means of a remote flight control station (also called a ground control station or GCS). The pilot-operator typically controls the unmanned aircraft autonomously by means of computer interface with an onboard flight management system (fly-by-mouse) through a command and control communications link. The pilot-operator is the designated pilot in command of the unmanned aircraft (e.g., a Global Hawk pilot).

A.37 Pilot Monitoring. The pilot not currently flying the aircraft, but who is monitoring the other pilot’s and the aircraft’s performance and position.

A.38 Primary Aircrew. The required pilot(s), flight engineer, and any other aircrew member so designated by the Center.

A.39 Program Support Aircraft. Aircraft used to support programs and operations other than the direct production and acquisition of data.

A.40 Public Aircraft. Aircraft used only in the service of a Government or a political subdivision. It does not include Government owned aircraft engaged in carrying persons or property for commercial purposes. (Source: 49 U.S.C. §§ 40102 (16), (37))

A.41 Qualified Non-Crewmember. An individual other than a member of the crew whose presence is required to perform, or is associated with the performance of, the mission the aircraft is supporting.

A.42 Quality Assurance. The act of attaining certainty that maintenance performed on aircraft meets all required airworthiness standards, regulations, practices, and

guidelines.

A.43 Required Use. Passenger transportation mission management flights where the use of Government aircraft is required because of bona fide communications or security needs or exceptional scheduling requirements.

A.44 Radio Control Pilot. The RC Pilot (also called Safety Pilot or External Pilot) is an individual who operates an unmanned aircraft by means of a remotely located, manually operated radio-controlled flight management system (direct control by means of stick-to-surface interface). The flight controller is typically commercial off-the-shelf RC hobby equipment. Radio frequencies associated with the command and control function of the system are typically in the unlicensed spectrum suite (72 MHz, 900 MHz, or 2.4 GHz). The RC Pilot is the designated PIC of the unmanned aircraft. An RC Pilot also may perform crewmember duties of a safety (or external) pilot who acts as a fail safe to an unmanned aircraft system that is normally controlled by a pilot-operator. The safety (or external) pilot flight control system is typically commercial off-the-shelf RC hobby equipment that may be either stand alone or be modified to function as a buddy box. In the buddy box configuration, the safety (or external) pilot controls the unmanned aircraft through the GCS communication link protocol. When the safety (or external) pilot is controlling the unmanned aircraft, that person is considered the PIC. All flight operations are within visual line of sight of the controlling pilot.

A.45 Remote Pilot. Remote Pilot (also called Remotely Operated Aircraft (ROA) or Remotely Piloted Vehicle (RPV) Pilot) is an individual who operates an unmanned aircraft system by means of manual control in a remotely located ground control station. The Remote Pilot typically manages the unmanned aircraft flight path through a command and control communication link using manual stick-and-rudder inputs, a forward looking video camera feed, and a moving map display system located in the GCS. The Remote Pilot is the designated PIC of the unmanned aircraft (e.g., a Predator pilot).

A.46 Research and Development Aircraft. All aircraft directly related to the production or acquisition of data.

A.47 Second in Command. A NASA Pilot who is qualified by NASA to be a SIC of an aircraft by appropriate Center or passenger transportation mission management directives.

A.48 Small Unmanned Aircraft System (sUAS). A model or subscale aircraft designed and built to operate with an onboard flight management system. Small UASs may carry a variety of payloads and operate using either licensed or unlicensed spectrums for command and control. sUASs can be operated via a manual control, manually via an onboard flight management system, or autonomously.

A.49 State Aircraft. NASA aircraft being operated as public use in international airspace under diplomatic clearances are considered State Aircraft, per U.S. Department of State guidance.

A.50 Unmanned Aircraft System (UAS). A UAS is any airborne vehicle system without a pilot onboard that is controlled autonomously by an onboard control and guidance system or is controlled from a monitoring station outside of or remote from the UAS vehicle. A UAS is defined as an aircraft by the FAA. UASs also can be operated via a remotely located, manually operated flight control system or ground control system.

A.51 Waiver. A documented authorization releasing a program or project from meeting a requirement after the requirement is put under configuration control at the level the requirement will be implemented.

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